

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) A self contained differential pressure sensor capable of being coupled to an apparatus through which a fluid flows, said sensor comprising:

a fluid channeling device having a fluid channel defined therethrough and a fluid flow detector located in said fluid channel, said fluid channeling device further having a flexible input hose, a flexible output hose, and a fluid container having an input aperture to which said flexible input hose is coupled and an output aperture to which said flexible output hose is coupled;

a circuit coupled to said fluid flow detector for detecting a level of fluid flow through said fluid channel;

memory having stored therein a characteristic of said fluid channeling device, said characteristic comprising at least one fluid channel calibration constant, and wherein said characteristic of said fluid channeling device stored in said memory comprises calibration data related to the fluid impedance characteristics for said flexible input hose and said flexible output hose; and

a microcontroller coupled to said fluid flow detector and said memory, said microcontroller being configured to determine a differential pressure value based on said level and on said characteristic;

wherein the differential pressure sensor is capable of being coupled to the apparatus via said flexible input hose and said flexible output hose.

2. (Original) A differential pressure sensor as recited by claim 1, wherein said fluid flow detector comprises:

a first thermistor provided at a first location in said fluid channel; and

a second thermistor provided at a second location in said fluid channel.

3. (Original) A differential pressure sensor as recited by claim 2, wherein a fluid flows through said fluid channel in a fluid flow direction, and wherein said second location is downstream from said first location in the fluid flow direction.

4. (Cancelled)

5. (Currently Amended) A differential pressure sensor as recited by claim [4] 1, wherein said characteristic of said fluid channeling device comprises a first constant K_1 and a second constant K_2 .

6. (Original) A differential pressure sensor as recited by claim 2, wherein said circuit comprises:

a wheatstone bridge circuit having four resistors, one of which is said second thermistor;

and

a voltage divider circuit having two resistors, one of which is said first thermistor.

7. (Original) A differential pressure sensor as recited by claim 6, wherein said second thermistor is operated in constant temperature mode.

8. (Original) A differential pressure sensor as recited by claim 6, wherein said circuit further comprises an operational amplifier electrically coupled to said wheatstone bridge circuit to maintain said wheatstone bridge circuit in a balanced condition.

9. (Currently Amended) A method of calibrating a self contained differential pressure sensor comprising the steps of:

(a) providing a calibration system having an enclosure with a pressure chamber and a controller for controlling a pressure within the pressure chamber;

(b) coupling a pressure sensor to be calibrated to the calibration system and controller, said pressure sensor comprising a fluid channeling device that comprises ~~an~~ a flexible input hose and ~~an~~ a flexible output hose, said pressure sensor being coupled to said calibration system via said flexible input hose and said flexible output hose;

(c) setting a pressure within the pressure chamber;

(d) recording ~~an~~ a differential pressure output signal of the pressure sensor to be calibrated indicative of its response to the pressure set within the pressure chamber in step (c);

(e) calculating a constant for the pressure sensor to be calibrated based on the output signal recorded in step (d); and

(f) writing the constant in a memory of the pressure sensor to be calibrated, wherein a characteristic of said fluid channeling device stored in said memory comprises calibration data ~~for~~ related to a fluid impedance characteristic of said flexible input hose and a fluid impedance characteristic of said flexible output hose.

10. (Original) A method as recited by claim 9, further comprising the step of repeating steps (c) through (e) for a predetermined number of iterations.

11. (Currently Amended) A system for controlling air flow in an enclosure having a chamber defined therein, said system comprising:

a supply air system coupled to the chamber for providing air flow into the chamber; and

a first differential pressure sensor coupled to said supply air system and comprising:

an air channeling device having an air channel defined therethrough and a air flow detector located in said air channel, said air channeling device further having a flexible input hose, a flexible output hose, and a container having an input aperture to which said flexible input hose is coupled, and an output aperture to which said flexible output hose is coupled, said first differential pressure sensor being coupled to said supply air system via said flexible input hose and said flexible output hose;

a circuit coupled to said air flow detector for detecting a level of air flow through said air channel; and

memory having stored therein a characteristic of said air channeling device, said characteristic comprising at least one air channel calibration constant, and wherein said characteristic of said air channeling device stored in said memory comprises calibration data related to the fluid impedance characteristics for said flexible input hose and said flexible output hose;

said first differential pressure sensor calculating a differential pressure and controlling said supply air system to maintain a predetermined air flow in the enclosure.

12. (Original) A system as recited by claim 11, wherein said air flow detector comprises:

a first thermistor provided at a first location in said air channel; and

a second thermistor provided at a second location in said air channel.

13. (Original) A system as recited by claim 12, wherein air flows through said air channel in an air flow direction, and wherein said second location is downstream from said first location in the air flow direction.

14. (Cancelled)

15. (Currently Amended) A system as recited by claim ~~14~~11, wherein said characteristic of said air channeling device comprises a first constant K_1 and a second constant K_2 .

16. (Original) A system as recited by claim 12, wherein said circuit comprises:

a wheatstone bridge circuit having four resistors, one of which is said second thermistor;

and

a voltage divider circuit having two resistors, one of which is said first thermistor.

17. (Original) A system as recited by claim 16, wherein said second thermistor is operated in constant temperature mode.

18. (Original) A system as recited by claim 16, wherein said circuit further comprises an operational amplifier electrically coupled to said wheatstone bridge circuit to maintain said wheatstone bridge circuit in a balanced condition.

19. (Original) A system as recited by claim 11, further comprising
an exhaust air system coupled to the chamber for providing air flow out of the chamber.

20. (Original) A system as recited by claim 19, further comprising:

a second differential pressure sensor coupled to said exhaust air system and comprising:
an air channeling device having an air channel defined therethrough and a air flow detector located in said air channel, said air channeling device further having a flexible input hose, a flexible output hose, and a container having an input aperture to which said flexible input hose is coupled, and an output aperture to which said flexible output hose is coupled, said second differential pressure sensor being coupled to said supply air system via said flexible input hose and said flexible output hose;

a circuit coupled to said air flow detector for detecting a change in air flow through said air channel; and

memory having stored therein a characteristic of said air channeling device, said characteristic comprising at least one air channel calibration constant, and wherein said characteristic of said air channeling device stored in said memory comprises calibration data related to the fluid impedance characteristics for said flexible input hose and said flexible output hose;

said second differential pressure sensor calculating a differential pressure and controlling said exhaust air system to maintain a predetermined air flow in the enclosure.

21. (Original) A system as recited by claim 20, wherein said air flow detector comprises:

a first thermistor provided at a first location in said air channel; and

a second thermistor provided at a second location in said air channel.

22. (Original) A system as recited by claim 21, wherein air flows through said air channel in an air flow direction, and wherein said second location is downstream from said first location in the air flow direction.

23. (Cancelled)

24. (Currently Amended) A system as recited by claim ~~23~~ 20, wherein said characteristic of said air channeling device comprises a first constant K_1 and a second constant K_2 .

25. (Original) A system as recited by claim 21, wherein said circuit comprises:

a wheatstone bridge circuit having four resistors, one of which is said second thermistor;

and

a voltage divider circuit having two resistors, one of which is said first thermistor.

26. (Original) A system as recited by claim 25, wherein said second thermistor is operated in constant temperature mode.

27. (Original) A system as recited by claim 25, wherein said circuit further comprises an operational amplifier electrically coupled to said wheatstone bridge circuit to maintain said wheatstone bridge circuit in a balanced condition.